N5GC device
Wireline Access Network
RG
W-AGF
AMF/SEAF
AUSF
UDM
1a. L2 connection
1b. L2 connection
2a. L2 (EAP-Req/Identity)
2b. L2 (EAP-Res/Identity, (NAI=username@realm))
3. Create Registration Request on behalf of N5GC device
4a. AMF Selection
4b. Registration Request (SUCI, SN-name, N5GC device)
4c. Nausf_UEAuthentication_AuthenticateRequest (SUCI, SN-name, N5GC device)
5a. Nudm_UEAuthentication_GetRequest (SUCI, SN-name, N5GC device)
5b. Method Selection
5c. Nudm_UEAuthentication_GetResponse (SUPI, EAP-TLS)
6a. Nausf_UEAuthentication_AuthenticateResponse (EAP Request (EAP-TLS, Start=1))
6b. Authentication Request (EAP Request (EAP-TLS, Start=1))
6c. L2 (EAP Request (EAP-TLS, Start=1))
7a. L2 (EAP Response (EAP-TLS, Client_Hello))
7b. Authentication Response EAP Response (EAP-TLS, Client_Hello)
7c. Nausf_UEAuthentication_AuthenticateRequest (EAP Response (EAP-TLS, Client_Hello))
8a. Nausf_UEAuthentication_AuthenticateResponse (EAP Request (EAP-TLS, Server_Hello, Certificate, Server_key_exchange, Certificate_request, Server_hello_done))
8b. Authentication Request (EAP Request (EAP-TLS, Server_Hello, Certificate, Server_key_exchange, Certificate_request, Server_hello_done))
8c. L2 (EAP Request (EAP-TLS, Server_Hello, Certificate, Server_key_exchange, Certificate_request, Server_hello_done))
9. Device Authenticates Network
10a. L2 (EAP Response (EAP-TLS, Certificate, Client_key_exchange, Certificate_verify, Change_cipher_spec, Finished))
10b. Authentication Response (EAP Response (EAP-TLS, Certificate, Client_key_exchange, Certificate_verify, Change_cipher_spec, Finished))
10c. Nausf_UEAuthentication_AuthenticateRequest (EAP Response (EAP-TLS, Certificate, Client_key_exchange, Certificate_verify, Change_cipher_spec, Finished))
11. Network Authenticates Device
12a. Nausf_UEAuthentication_AuthenticateResponse (EAP Request (EAP-TLS, Change_cipher_spec, Finished))
12b. Authentication Request (EAP Request (EAP-TLS, Change_cipher_spec, Finished))
12c. L2 (EAP Request (EAP-TLS, Change_cipher_spec, Finished))
13a. L2 (EAP Response (EAP-TLS))
13b. Authentication Respones (EAP Response (EAP-TLS))
13c. Nausf_UEAuthentication_AuthenticateRequest EAP Response (EAP-TLS)
14a. Nausf_UEAuthentication_AuthenticateResponse (SUPI, EAP Success)
14b. Authentication Result (EAP Success)
14c. L2 (EAP Success)
15.Nudm_UEAuthentication_ResultConfirmation Request (SUPI, SN-name, EAP-TLS, timestamp)
16. UDM store authentication status of UE
17. Nudm_UEAuthentication_ResultConfirmation Response
18. Nudm_UEContextManagement Registration Request
19. UDM authorizes registration request based on the UE status in step 16
20. Nudm_UEContextManagement Registration Response
21. Registration Accept